

But we must not prolong our review of this able essay on these familiar lines. Suffice it to say that to those who enjoy this sort of discussion, and who appreciate its serious significance, this last utterance from the renowned biologist of Freiburg—though somewhat more discursive than is his wont—will afford, as the saying is, both pleasure and profit.

The second part of the essay contains an attempt to show, not merely that regenerative phenomena are adaptive, and presumably the outcome of selection, but that they are interpretable, on the ontogenetic theory of "anlagen," "determinants," "neben-Determinanten," "reserve germ-plasm," and the like. This is quite another affair, and altogether too complex to be dealt with in a few lines. But we would venture to insist that the evolutionary or phylogenetic interpretation of regeneration phenomena as adaptive is independent of the subtler developmental or ontogenetic theory of the manner in which the capacity may be supposed to organise and express itself.

It seems to us regrettable that Prof. Weismann should condescend to notice the "invectives, sarcasm, and derision which have been showered upon" him, and that he should regard

"Such utterances as a not exactly desired, but yet not altogether unsatisfactory, sign that the less noble emotions of human nature—envy and ill-will—have found cause to direct themselves against the results of my work."

No doubt criticism without knowledge is exasperating, but it is also humbug; no doubt invective without appreciation is irritating, but it is mere pettifogging; and why should the immortals concern themselves about either?

A more philosophical temper, which we should regard as more deeply habitual, is indicated in one of the paragraphs towards the end of the pamphlet.

"One of my critics has compared my 'theories' to 'towns in the Far West,' the houses of which are barely erected when they are taken down again to be rebuilt further out in the unknown land. I accept the simile, provided it be not forgotten that the first house of the advancing pioneer must remain standing and in use for a time before the region beyond becomes accessible to further colonisation."

We would respectfully commend to the illustrious author a motto from a northern University, "They have said, What say they? Let them say." For the author of the "Germplasm" and "Germinal Selection" is surely, among living biologists, the foremost pioneer. J. A. T.

#### WEST AFRICAN FETISH.

*West African Studies.* By Mary H. Kingsley. With illustrations and maps. Pp. xxiv + 639. (London: Macmillan and Co., 1899.)

FOR the last three years Miss Kingsley has been known to the scientific world as a careful collector of facts relating to West Africa, while to the unscientific public interested in works of exploration and travel she is known as a writer with an original and very entertaining manner. Her book entitled "Travels in West Africa," which was published in 1896, was the result of two journeys to West Africa, where she had devoted herself to the study of fetish and fresh-water fishes. In the

preface to her present volume she tells us that her previous work, which she rather unjustly refers to as "a word-swamp of a book," was of the nature of an interim report. She there confined herself to facts, and eliminated as far as possible any inferences that might be drawn from them, distrusting at the time her own ability to make theories, and intending that ethnologists should draw from her collections of material such facts as they might care to select. The use that has been made of the volume since its appearance has certainly justified Miss Kingsley's method of publication. But there was obviously room for another work on the same subject from her pen. No one was better qualified than herself to form opinions with regard to the beliefs and practices she studied, and we are glad to find that in the present work she has formulated the conclusions at which she has arrived. We welcome the book as a valuable supplement to the first volume of her travels.

The book contains a good deal or very varied information, and while some portions of it appeal to the anthropologist and student of religion, others deal with purely scientific observations, and others again are of a political nature. Miss Kingsley's criticism of the Crown Colony system will doubtless receive the attention it deserves at the hands of those who are responsible for the methods we adopt as a nation in dealing with our tropical possessions. Her chapter entitled "Fishing in West Africa," which has already appeared in the *National Review*, explains the means by which she was enabled to form the collections which won Dr. Günther's admiration; while in the same connection we have an interesting account of the little fishes (*Alestinus Kingsleyae*) which have the honour to bear their discoverer's name. The most interesting part of the book, however, which Miss Kingsley herself regards as of greatest importance, is the section which deals with the subject of fetish in West Africa. The word fetish is used by Miss Kingsley in a much wider sense than that in which it is generally employed at the present day. The word was adopted into scientific literature from the writings of the old Portuguese navigators, who were the modern discoverers of West Africa. These men noticed the veneration paid by Africans to inanimate objects, and called these things *Feitiço*, a term they applied to their own talismans and charms. The word is nowadays generally employed in a rather similar sense as a general term for the doctrine of spirits embodied in, or conveying influence through, material objects. Miss Kingsley, however, in spite of a protest from Prof. Tylor, has thrown over this established usage, and employs the word as a convenient synonym for the religion of the natives of the West Coast of Africa where they have not been influenced either by Christianity or Mohammedanism. Using the term with this extended application, Miss Kingsley classifies West African fetish into four main schools: the Tshi and Ewe school, which is mainly concerned with the preservation of life; the Calabar school, which attempts to enable the soul to pass successfully through death; the Mpongwe school, which aims at the attainment of material prosperity; and the school of Nkissi, which chiefly concerns itself with the worship of the power of the earth. These schools of fetish are not sharply defined, and many of the same

things are worshipped indiscriminately in each; but Miss Kingsley has shown that in certain schools certain ideas are predominant, and her classification is based on a general survey which can afford to ignore minor inconsistencies. It is interesting to note that, according to Miss Kingsley's observations, the African, to whatever school of fetish he may belong, conceives of a great over-God, who has below him lesser spirits including man. But this fact does not necessarily support Mr. Andrew Lang's recently promulgated theory as to the original purity and elevation of the religious beliefs of primitive races, though Miss Kingsley herself is inclined to identify her own conception of things with that she found current among the peoples she studied. We have merely touched on the principal sections of Miss Kingsley's very interesting work, and have not space to do more than recommend its perusal to all those interested in the religions of the undeveloped races of mankind. The reader will find in it much material of the greatest scientific importance, while its anecdotes and lively style render it one of the most entertaining books of travel and observation that has appeared for many years.

#### OUR BOOK SHELF.

*Catalogue of the Library of the Royal Botanic Gardens, Kew.* (London, 1899.)

THE issue of this catalogue fittingly commemorates the development, up to the last year of the nineteenth century, of an adjunct indispensable in the equipment of a centre of botanical research so deservedly famous as the Royal Botanic Gardens at Kew. The many botanists that have enjoyed the access to the library so freely allowed to workers in the Herbarium, and have learned to value the stores of information contained in it, will rejoice to have the catalogue as a guide to render the riches of the library still more accessible than in the past. But not to those alone that can visit Kew Herbarium is it likely to be welcome. Botanists living at a distance that precludes frequent visits to Kew Herbarium will find it most useful for reference as a guide to the literature of botany, and will value it accordingly.

The size of the library may be judged from the fact that a rough calculation shows upwards of 15,000 separate entries of books or papers, besides numerous cross-references. Of course, all sides of botanical research are represented, from the more elementary to the most profound, from the most rigid study of botany as pure science to its practical applications to industries and arts, to folk-lore, and to its manifold links with other fields of study, scientific and literary. Occasionally one meets with a title that at the first glance seems to have little connection with botany, e.g. W. Ridgeway's "The Origin of Metallic Currency and Weight Standards," yet these only serve to show the curious relations of botany to other studies.

The entries are divided into four series, each arranged alphabetically:—(1) General, occupying 683 pages; (2) Travels, 43 pages; (3) Periodicals and Serials, 47 pages; (4) Manuscripts, 15 pages, large octavo.

The catalogue has been prepared by Mr. B. Daydon Jackson, and is marked by the accuracy so characteristic of all his work in botanical bibliography. Despite the peculiar risk of errors in transcribing and printing the titles and necessary details, many of which are in very unfamiliar languages, the freedom from errors is very noteworthy.

An introduction to the volume from the pen of the Director of the Gardens gives a brief account of the

leading facts in the formation of the library, which originated as a public library in 1852, when Miss Bromfield presented to the Gardens the botanical books that had belonged to her deceased brother, Dr. W. A. Bromfield. Sir William Hooker, on his appointment as Director in 1841, had offered to make his large private library and herbarium available for public use if they were suitably accommodated. This was done in a house provided for him as Director until 1852, when they were transferred to the present Herbarium, though still remaining his private property. In 1854 the late George Bentham, F.R.S., very generously gave his large botanical library to the Herbarium, where in subsequent years he long continued those researches by which he so greatly advanced the science of botany. In 1867, after Sir William Hooker's death, the Treasury sanctioned the purchase for the library of those botanical works that had belonged to him and that the library did not possess.

Valuable legacies and gifts have also been received from other sources, and numerous serials are obtained in exchange; and purchases are made with occasional grants from the Bentham Trust. The sum expended from public funds in the formation of the library has been very small in comparison with its value, and has consisted of a small annual subsidy since 1849, supplemented after some years by free binding by the Stationery Office. One important source of constant additions—the gifts of books and separate papers from the authors—is largely the result of the benefits experienced by the botanists that come from far and near to pursue researches at Kew.

The catalogue would become still more valuable to botanists if there could be added a subject-division, even under large sections, of the multitude of titles that it contains. The difficulties of doing so are indeed considerable, but the aid to workers would be very great.

*The Larvæ Collector's Guide and Calendar.* By J. and W. Davis. Pp. 90. (Dartford: J. and W. Davis.)

THE times of the appearances of the British macrolepidoptera are given in this little book, together with notes on rearing lepidoptera from eggs, larvæ, and pupæ. Young naturalists should find the volume useful in stocking their butterfly cages, and as a guide to the management of insects in the different stages of development.

#### LETTERS TO THE EDITOR.

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of NATURE. No notice is taken of anonymous communications.]

#### A Lecture Experiment on the Relative Thermal Conductivities of Various Metals.

MOST lecture experiments on the conductivities of metals occupy too much time to be very effective, and in addition are often somewhat uncertain in their action. The following arrangement may be very quickly and simply put together, and by its aid the relative conductivities of a number of metals may be quantitatively determined in an interval of about a minute, the essential parts of the apparatus being capable of projection on a screen.

A piece of brass tube, about 10 cm. in diameter and 20 cm. in length, is closed at one end by means of a brass disc. A number of holes are bored in this disc to receive the extremities of rods of copper, brass, iron, &c., each rod being 2.5 mm. in diameter and about 15 to 20 cm. in length. The rods are soldered in position perpendicular to the disc.

Each rod is provided with a small index, made from a piece of copper wire of about .8 mm. diameter, bent into the form shown in Fig. 1, a small arrow-head of blackened paper or mica being attached by shellac varnish. The rings forming part of each index are wound on a rod *very slightly* larger in diameter than the experimental rods.

To start with, the brass vessel is inverted, an index is slipped